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THE pH OF THE SKIN SURFACE OF CHILDREN WITH SEBORRHOEIC DERMATITIS COMPARED WITH UNAFFECTED CHILDREN.

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INTRODUCTION.

WORK done elsewhere (e.g. Levin and Silvers, 1932 ; Bergeim and Cornbleet, 1947 ; Anderson, 1951 ; Schmid, 1952) suggests that the acid or alkaline reaction of the skin surface of patients with certain skin disorders is different from that of unaffected persons. Evidence exists that in some conditions this difference is manifest by a lowered hydrogen-ion concentration, recognized as a raised pH of the skin surface. Moreover, while in some conditions the difference is limited to the affected area of the patient's skin, in others it is general over the whole body surface. The volume of work done in this field and the number of patients studied seem to have been remarkably small. There seem to be little or no data available to show whether these apparently abnormal reactions arise because of the skin disorder, or whether such disorders are more common in persons whose skin surface pH diverges markedly from average levels. However, some observations have been recorded of a " return to normal " in patients after their skin infection has disappeared.

Levin and Silvers (1932), using a quinhydrone-electrode potentiometer, found that the skin surface of healthy persons was acid, with levels of 5·0 to 5·3 pH units, but they observed variations between body sites. They noted that in acute and subacute eczematous conditions of the skin, the pH was raised to a level indicative of an almost neutral state. In chronic eczematous conditions with lichenification and scaling there appeared to be only slight change, but in erythroderma the pH level was considerably increased.

Bergeim and Cornbleet (1947) made estimates on scalp washings and drew attention to the normally acid reaction of the scalp, varying between 4·5 and 5·5 pH units. They felt that such acidity, attributed to lactic acid in sweat and to volatile fatty acids resulting from the action of micro-organisms on the lactic acid, was enough to create anti-bacterial conditions for many micro-organisms. However they could not postulate a relationship between acidity and seborrhoea.

Anderson (1951), using the glass-electrode technique, compared 50 eczematous with 50 unaffected children by estimating pH at fifteen body sites. Unfortunately, her numbers with specific disorders were small and her data often incomplete, but she felt confident that 13 children with seborrhoeic dermatitis had raised pH levels not only in affected areas but also in unaffected sites. Schmid (1952) reported similar findings in seborrhoeic patients. In 18 children with Besnier's prurigo and 16 infants with facio-flexural eczema, Anderson found that the pH level at affected skin areas was raised. In the light of these results, she discussed the aetiology of infantile eczema and formed the opinion that the tendency of the seborrhoeic child to develop secondary skin infections, even in the absence of eczematous lesions, indicated a quality of skin associated with generalized high pH values such as observed in her series with seborrhoeic dermatitis.

If it could be demonstrated that the risk of clinically manifest seborrhoeic dermatitis was associated with the level of skin pH, then the diagnostic value of detecting children with skin surface reactions above or below a critical pH level would be considerable. Such a demonstration, however, is no easy matter; in effect, it requires the continued observation of a large group of subjects, with repeated pH estimations, so that clinical attacks, if and when they occur, can be related to earlier skin pH levels. Though such an approach is theoretically desirable, in practice the relatively low incidence of eczematous conditions would necessitate the follow up of very large numbers of children in order to test the hypothesis with reasonable confidence.

Before contemplating such an undertaking, which, indeed, might well be impossible, it seemed desirable to attempt to establish firmly the contention that the skin surface over the whole body is " abnormally " alkaline in children with seborrhoeic dermatitis, the conclusion which was the most convincing feature of Anderson's work. This is the subject of what follows and at a later date we hope to re-examine our patients to see whether a change occurs in pH levels after the skin condition has been cleared.

Experimental Design.

General Plan.

In a series of admirable papers, Blank (1939*a*, *b*, *c* and *d*) reported the results of making pH estimations by the glass-electrode technique at several body sites on a

series of male and female adults and children with no known skin disorder. He concluded that the average pH level of the skin surface of males was greater than that of females and demonstrated, although only in males, a higher average pH level in the young than in the old. Moreover, he found a number of differences in average pH level between body sites which can be shown to be significant (at the conventional level of $P < 0{\cdot}05$ used throughout this report). As a result of Blank's work we felt it necessary to compare a group of unselected patients with seborrhoeic dermatitis with a group of control children with no known skin disorder, to match each patient with a control of the same age and sex and to estimate the pH level of the skin surface at the same, reasonably large, number of sites on every child. By this design we hoped to minimize any difference in pH levels between patients and controls which might otherwise have arisen through differences in age and sex.

Blank's tables gave data from which it was estimated that, with about 45–50 children in each of two groups, an average difference in pH level of 0·3 pH units or more would be statistically significant. As the method of measurement was unlikely to give accuracy greater than $\pm$ 0·2 pH units and in view of the limited resources available, it was decided to include the first 45 children with seborrhoeic dermatitis, aged over three months and under three years, attending for treatment after a given date and to match these children for age, within one month, and sex with 45 control children who had no known skin disease. Most of these controls were residents in a local orphanage, some were hospital out-patients with injuries and some were attending the local maternity hospital for routine post-natal examination. In fact, 46 children were included in each group but for reasons given later one pair was subsequently omitted. Patients and controls were examined in circumstances as similar as possible and estimations were made twice on controls, with an interval of at least two weeks, and at least twice for patients. For each child, an estimate was made on each occasion for all the nineteen sites shown in Table I. For patients, a note was made to show which sites were affected and which were not.

Method of Estimating pH.

Measurements of skin-surface pH were made using a Marconi direct-reading pH indicator type T.F. 889. The facility of direct reading is more desirable than potentiometric measurement in work with very small infants where a great time cannot be allowed for reading. The instrument is readily set up, remains stable for at least

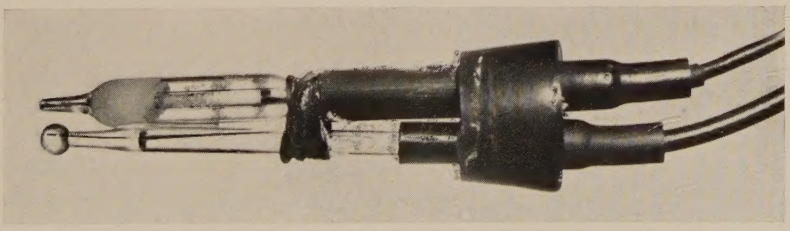

Fig. 1.

3 hours and the scale can be read to about $\pm$ 0·1 pH units. The glass electrode was a Stadie-type micro glass bulb and in conjunction with it a micro calomel electrode manufactured by the Doran Instrument Company was employed. It terminates in a fine glass capillary which is moistened by the saturated potassium chloride in the electrode container vessel. By using a small rubber band, the tip of the calomel electrode could be approximated to within 5 mm. of the micro glass electrode bulb, so that the area of contact with the skin was very small (Fig. 1). Both electrodes were

fitted with 6 ft. leads for connection to the pH indicator for convenience in covering the body surface of a child.

In a typical series of readings, the instrument was standardized using a pH 4·0 potassium phthalate buffer, after which the electrode system was kept in a small jar of distilled water. It was dipped in this water between each of the readings taken at different skin sites. The temperature-compensating potentiometer was set to 25–30°. In practice, the protocol of readings could be carried out in about 5 minutes per child.

Description of Body Sites.

In selecting the various examination sites, attention was paid to those areas which are frequently affected by seborrhoeic disease. It was desirable to include the groins and perianal area but we found these areas so often contaminated with urine and faeces that the readings were of doubtful value and this was later demonstrated by the statistical analysis of the control data. The skin was not cleaned before pH estimations were made, although this was the practice of some earlier workers. It was considered that cleansing would remove much of the very material of which pH estimates were required. Mothers of children who were having local treatment were told in advance not to apply ointments or cleansing agents on the days when examinations were to be made and our estimations were always made in the late morning or afternoon.

Diagnostic Criteria.

There is considerable dispute among dermatologists over the differentiating features of infantile or atopic eczema and seborrhoeic eczema as seen in infants and young children. We are convinced not only that seborrhoeic dermatitis in infants exists but that in certain parts of the world, including Northern Ireland, it is much more common than true infantile or atopic eczema. Frequent discussions with dermatological colleagues from several countries have strengthened this view. The recognition of seborrhoeic dermatitis in infants was based on the following points :

1. The condition usually, but not always, starts on the scalp and the scalp is usually, but not always, affected throughout the illness.

2. Later, the condition affects the face, spreading down on to the forehead, eyelids and cheeks, the retroauricular folds, the neck and upper chest and the other body folds and limb flexures. Occasionally it may be generalized.

3. The affected areas show erythema, desquamation and a variable amount of crusting and impetiginization.

4. Though the affected areas may be moist over their entire surface, the characteristic papulovesicles of infantile or atopic eczema are absent.

5. Pruritus is never severe and may, even in extensive cases, be absent. This is in striking contrast to true infantile or atopic eczema.

6. Coincident nasal and aural infections are common.

7. The prognosis is good, though in later years blepharitis, retroauricular and perianal intertrigo, and scaling of the scalp are common. However, flexural eczema and asthma do not occur.

8. These children are commonly fair or red haired and their skin is tender and does not tolerate irritants such as sunlight.

In order to confirm our diagnosis, we frequently had a colleague in consultation. We re-examined all patients until their skin disease had disappeared, since if flexural eczema or asthma eventually developed, the original diagnosis of seborrhoeic eczema was incorrect.

Results.

A preliminary examination of the control data was made to see whether any material difference occurred in the pH level at the two examinations. Such a difference would raise questions about the method, the conditions of estimation, or the instability of the skin surface pH, which would invalidate the ultimate comparison between controls and patients. The mean pH at each site for the controls is shown in Table I, and although the results for the two examinations

Table I.—*Mean pH of* 46 *Controls at First and Last Examination.*

	Mean pH in pH units.		
	1st. exam.	2nd exam.	Difference (1st-2nd)
Scalp	5·98	6·00	−0·02
Forehead	5·86	5·89	−0·03
Sternum	6·10	6·10	
Abdomen	6·20	6·18	0·02
Perianal	6·84	6·64	0·20*
Malar eminence—left	6·04	6·05	−0·01
right	6·03	6·03	
Retroauricular fold—left	6·01	6·04	−0·03
right	6·00	6·01	−0·01
Axilla—left	6·22	6·12	0·10
right	6·21	6·15	0·06
Antecubital fossa—left	6·01	6·03	−0·02
right	6·16	6·03	0·13
Wrist flexure—left	6·03	5·96	0·07
right	6·09	6·07	0·02
Groin—left	6·68	6·48	0·20†
right	6·87	6·70	0·17*
Popliteal fossa—left	6·32	6·33	−0·01
right	6·33	6·34	−0·01

* Difference significant at $P < 0·05$
† Difference significant at $P < 0·01$
} In this and later tables.

Standard error of a bilateral site mean is 0·04 pH units and of any other site mean 0·06 pH units.

appear very similar, the data were examined by analysis of variance. For the bilateral sites, significant variation was found between subjects and between sites, as might be expected from Blank's work, but there were also significant

differences between the two examinations, coupled with evidence of significant interactions between examinations and subjects and examinations and sites. For the other (single) sites there were again significant variations between subjects and between sites and a significant interaction between them.

In view of this analysis, the plan to match patients with controls of like age and sex was fully justified and it was clear that comparison between controls and patients would have to be made in terms of each site separately. Further inspection of the control data showed that the groin was the site responsible for the significant difference between examinations among the bilateral sites. Moreover, the difference observed for the perianal area was also large and possibly just significant among the single sites. Consequently, these sites were omitted from further consideration. One control subject was found to have remarkably low pH estimates at all sites at the first examination (mean = 4·4) and quite high pH at all sites at the second examination (mean = 6·3). It seemed likely that something had gone wrong with the process of estimation at one of these examinations, so we omitted this control and his matched patient from the data.

Therefore, we have compared 45 patients and 45 controls in respect of the mean pH at each of sixteen body sites. The estimation made at the first examination of both control and patient has been used for this purpose in the hope that each patient was at approximately the same stage of disease when referred and what was possibly more important, had had no effective treatment. For each site, the patients have been subdivided into two groups, those affected at that site and those not affected. Each of these subgroups is compared with the matched controls of its members. Table II gives the results for the affected sites and Table III for the unaffected sites.

To explain Table II, consider the entries for the scalp. There were 30 patients with affected scalps. The mean pH on the scalp of these 30 patients was 6·77 pH units while that for their 30 matched controls was 6·02 pH units. The difference (patient-control mean) is 0·75 pH units which is 3·94 ($= t$) times as large as its standard error, so that a difference as great or greater than this is likely to occur by chance less than once in 1000 trials (i.e. $P < 0{\cdot}001$).

From Table II, it is clear that with the one exception of the right axilla, the mean pH at the affected site was always higher than would have been expected from the controls. In the case of the scalp, forehead, both malar eminences, both retroauricular folds, the left antecubital fossa and the right popliteal fossa the difference was significant. In the remaining sites, the numbers affected were very small and the fact that the differences were not technically significant is not surprising.

To explain Table III, consider again the entries relating to the scalp. There were 15 patients who were not affected on the scalp, but because they were in the patient group they must have been affected on some other part of the body. These 15 patients had a mean pH of their unaffected scalp of 6·69 pH units, compared with 6·01 pH units, the mean pH of the scalps of their 15 matched controls. The difference (patients – controls mean) of 0·68 pH units is 3·00 times its standard error and a difference as great or greater than this is unlikely to arise by chance more than once in a hundred or less than once in a thousand trials ($0{\cdot}01 > P > 0{\cdot}001$).

TABLE II.—*Mean pH of Patients at Affected Sites Compared with Matched Controls.*

Site affected in patients.	Number of patients and of controls.	Mean pH in pH units. Patients. (P).	Controls. (C).	Difference. (P–C).	t	Degrees of freedom.	P
Scalp	30	6·77	6·02	0·75	3·94	58	<0·001†
Forehead	28	6·78	5·84	0·94	5·26	54	<0·001†
Sternum	13	6·56	6·25	0·32	1·18	24	0·20–0·30
Abdomen	6	6·57	6·42	0·15	0·48	10	0·60–0·70
Malar eminence :							
Left	29	6·71	5·94	0·77	5·35	56	<0·001†
Right	27	6·76	5·86	0·90	5·63	52	<0·001†
Retroauricular :							
Left	20	7·01	6·02	0·99	5·70	38	<0·001†
Right	19	6·79	5·93	0·86	3·40	36	0·001–0·01†
Axilla :							
Left	6	7·03	6·40	0·63	1·35	10	0·20–0·30
Right	8	6·48	6·54	−0·06	−0·16	14	0·80–0·90
Antecubital fossa :							
Left	9	6·61	5·94	0·67	2·32	16	0·02–0·05*
Right	8	6·49	6·00	0·49	1·51	14	0·10–0·20
Wrist flexure :							
Left	7	6·51	6·19	0·32	1·10	12	0·20–0·30
Right	3	6·57	5·87	0·70	1·79	4	0·10–0·20
Popliteal fossa :							
Left	12	6·63	6·08	0·55	1·85	22	0·05–0·10
Right	12	6·92	6·18	0·74	3·33	22	0·001–0·01†

TABLE III.—*Mean pH of Patients at Unaffected Sites Compared with Matched Controls.*

Site unaffected in patients.	Number of patients and of controls.	Mean pH in pH units. Patients. (P).	Controls. (C).	Difference. (P–C).	t	Degrees of freedom.	P
Scalp	15	6·69	6·01	0·68	3·00	28	0·001–0·01†
Forehead	17	6·20	5·98	0·22	0·89	32	0·30–0·40
Sternum	32	6·50	6·10	0·40	3·15	62	0·001–0·01†
Abdomen	39	6·40	6·22	0·18	1·24	76	0·20–0·30
Malar eminence :							
Left	16	6·23	6·35	−0·12	−0·55	30	0·50–0·60
Right	18	6·27	6·37	−0·10	−0·47	34	0·60–0·70
Retroauricular fold :							
Left	25	6·27	6·07	0·20	1·21	48	0·20–0·30
Right	26	6·36	6·12	0·24	1·39	50	0·10–0·20
Axilla :							
Left	39	6·42	6·24	0·18	1·37	76	0·10–0·20
Right	37	6·50	6·19	0·31	2·18	72	0·02–0·05*
Antecubital fossa :							
Left	36	6·34	6·07	0·27	1·88	70	0·50–0·10
Right	37	6·35	6·24	0·11	0·79	72	0·40–0·50
Wrist flexure :							
Left	38	6·27	6·05	0·22	1·76	74	0·50–0·10
Right	42	6·27	6·14	0·13	0·97	82	0·30–0·40
Popliteal fossa :							
Left	33	6·38	6·47	−0·09	−0·50	64	0·60–0·70
Right	33	6·25	6·45	−0·20	−1·22	64	0·20–0·30

Apart from the malar eminences and the popliteal fossae, the mean pH of the patients at their unaffected sites was greater than would be expected from their matched control means. However, in spite of reasonable numbers in the groups, these differences were significant only for the scalp, the sternum and the right axilla. This suggests that if the pH of patients' skin is generally raised, the increase in unaffected sites is small compared with that in affected sites. This is certainly borne out by the sites which showed a significant difference in Table II but not in Table III ; but the sternum and right axilla present peculiar reversals and the scalp appears to be a special case as the differences in patients and controls in each table are very similar.

Table III is by no means fully convincing, because more data are required to demonstrate the observed differences as significant, if indeed they represent true differences. However, it does offer some evidence in favour of a generalized rise in pH amongst patients because of the consistency in sign of most of the differences.

The conclusions to be drawn from this analysis are :

1. Subject to the following qualifications by site, the affected skin surfaces of patients with seborrhoeic dermatitis are more alkaline than those of comparable subjects with no skin disorder. This is almost certainly true when the affected areas are the scalp, forehead, malar eminences or retroauricular folds. It is probably true of the popliteal and antecubital fossae and might be true of other sites for which we had insufficient data.

2. If patients are affected in one area of their bodies, other areas, subject to the following qualification by site, are probably slightly more alkaline than those of comparable subjects with no skin disorder. There seems to be no doubt about this for the scalp, where the rise in pH is similar to that in affected scalps. For other unaffected sites, the data suggest that the increase in alkaline reaction is very small but we should require many more data to have real confidence in this suggestion.

Finally, it will be appreciated that in a study such as this, no control was exercised over selection of patients by affected sites. There may well be an association between generalized high pH and affection at a specific site but many more data would be required to examine this possibility.

We feel that these results give further support to those who believe that, as Ingram (1939) said, " the eruptions which we dub seborrhoeic are in fact reflections of disturbances of the constitutional state rather than infective conditions peculiar to the skin " and the fact that the seborrhoeic's skin is alkaline may indeed be the underlying reason why these patients so often show surface infection of one kind or another.

Summary.

The pH of the skin surface of 45 children aged three months to three years and suffering from seborrhoeic dematitis has been compared with that of 45 children with no skin disorders but of similar age and sex. Comparisons have been made for sixteen body sites commonly affected by seborrhoeic dermatitis.

The results support the suggestion that the seborrhoeic's skin is alkaline. The mean pH of fifteen of the sixteen body sites of seborrhoeic children was higher when these sites were affected than would have been expected from the corresponding control observations and for eight sites the difference was significant (at $P < 0{\cdot}05$). The mean pH of twelve of the sixteen body sites of seborrhoeic children was higher when these sites were unaffected than would have been expected from the corresponding control observations and for three sites the difference was significant. There was some evidence that the difference in mean pH of seborrhoeic patients and controls was consistently greater for affected than for unaffected areas of the body. Although a much larger and differently designed experiment is required to attain technical confirmation of this observation, it is highly probable that seborrhoeic patients have generally more alkaline skin surfaces than normal children and that this difference becomes more marked in body areas where clinical manifestation of the disease is present.

Acknowledgments.

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LIGHT ERUPTIONS AND THE ATP MECHANISM.

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THERE is reason to suppose that adenosine triphosphate (ATP) may be important in skin changes due to light. The ATP level in tissues governs many energy changes during normal metabolism, and both ultra-violet light and the antimalarial drugs seem to influence the ATP level. Ultra-violet irradiation causes breakdown of ATP in pure solutions and lowers its concentration in living cells. Antimalarial drugs are thought to antagonize some toxic effects of ATP, and in some of the " stress " disorders they are considered to act therapeutically in inhibiting the breakdown of ATP by ATP-ase.

The sources of these opinions will be noted first. Carter (1950) studied the effect of high-energy irradiation below 3000 Å on the rupture of the nucleoside bond in ATP, and after a 6-hour exposure, 20% breakdown into adenine was found to have taken place in a 0·3–1% solution of ATP. The effects of light on the phosphate bonds in ATP were not investigated, nor were the range of biological concentration of ATP or physiological doses of ultra-violet light studied.

In living cells, the ATP concentration during ultra-violet exposure was studied in frog sperm by Kanazir and Errera (1955). After 5–15 minutes exposure to 7500 ergs/mm.^{2}/min. at 2537 Å, there was a considerable decline in ATP concentration associated with a reduced motility and fertilizing power of the sperm.

In the treatment of lupus erythematosus with mepacrine, Page (1951) mentioned the possibility that the drug acted as an antagonist of adenylic compounds. The release of these compounds, which include ATP, may be responsible for shock following crush injuries to muscle, and mepacrine has been reported to protect animals from experimental shock of this type (Green and Stoner, 1950). This antagonism is not yet fully understood.

Haydu (1953) studied the clinical response of rheumatoid arthritis to chloroquine, and being convinced of its value in treatment, offered some account of its possible mode of action. He suggested that the high tissue energy requirements in disorders of stress called for high levels of ATP. This level could be maintained by administering antimalarials because of their inhibitory action on ATP-ase. The evidence rested mainly on the pharmacological action of quinidine on the ATP-ase of the heart, which some believe to be pathway of action when quinidine corrects cardiac arrythmias.

In the present study, experiments were planned to investigate the liberation of phosphate from ATP (i) in physiological exposures to ultra-violet light and (ii) in enzymatic breakdown in the presence of antimalarials.

Methods.

Irradiation of a 1 mM. ATP solution was carried out by placing it in a quartz cuvette at the exit slit of an ultra-violet monochromator for 5 minutes at 260 mμ. The energy output was approximately 4000 microwatts/cm.^{2}/sec., with a high pressure xenon arc with quartz envelope as the light source. Exposure of ATP to the full spectrum of the xenon arc light was also made for 10 minutes by placing the solution a few inches from the arc. These exposures and energy measurements were kindly carried out by Dr. I. A. Magnus.

ATP was the chromatographically pure substance (Sigma Chemical Co.), neutralized before use.

Enzymatic breakdown of ATP was studied using crude homogenates of guinea-pig and human whole skin at 2–4% concentration, kept frozen till required. Each tube contained 0·4 ml. homogenate and 10–15 μM ATP, and was allowed to react for 30–60 minutes at 37° C. Buffering at pH 7·1–7·3 was used to prevent precipitation of the antimalarial base at higher pH values. The reaction was run so that less than a quarter of the substrate was used, and it was stopped with trichloroacetic acid (6% final concentration). After centrifuging, the phosphate determination was made on the supernatant fluid by Martin's and Doty's modification of the Berenblum and Chain procedure (Lindberg and Ernster, 1956). Antimalarials used were quinine, mepacrine and chloroquine at final concentrations of 10^{-4} to 10^{-3} M, brought to neutrality before use. After centrifugation, and before the phosphate assay, the antimalarials were extracted with equal parts of isobutanol and benzene. Extraction before the addition of trichloroacetic acid was imperfect.

Results.

Irradiation of ATP solutions showed no liberation of phosphate or change in the ultra-violet absorption of the solution compared with the unirradiated duplicate. The doses used were well above those required to produce a minimal erythema. Direct photochemical breakdown of ATP can therefore play no part in damage due to light in the intact skin.

In the enzymatic breakdown of ATP it seemed at first that skin ATP-ase was inhibited about 20–50% by the antimalarials. However, it was found that the antimalarials were forming an immiscible yellow complex, possibly with molybdate, during the phosphate assay, and interfering consequently with the assay. When the drugs were removed before determining phosphate, there

was seen to be no inhibition by any of the antimalarials of the enzymatic breakdown of ATP in the skin.

Summary.

Evidence from the literature may suggest that adenosine triphosphate is a substance directly concerned with light eruptions and their treatment with antimalarials. Experiments were done which contradicted this suggestion, since it was shown that physiological doses of ultra-violet light cannot alter ATP itself, and that ATP-ase activity of the skin is unaffected by relatively high concentrations of antimalarials. Where the inhibition of ATP-ase by antimalarials has seemed to occur, a technical difficulty in the phosphate assay may have been overlooked.

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PSYCHO-PHOTO-RELATIONSHIP.

The Combined Effect of Mental and Actinic Influences on the Causation of Certain Dermatoses

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Tel-Aviv, Israel.

One hundred years ago Erasmus Wilson (1857) recognized an emotional factor in certain common dermatoses such as urticaria and eczema. In 1873 Tilbury Fox emphasized the " nervous " origin of dysidrosis. In 1891 Brocq and Jaquet first conceived the *névrodermites*, and in 1932 Becker introduced the concept of neurocirculatory instability in the pathogenesis of certain skin diseases. During the last two decades interest in the psychosomatic approach to medicine has increased considerably and particularly so in dermatology. The skin, intimately connected with, and embryologically related to the central nervous system is frequently the somatic outlet of a psychosomatic disturbance. English (1949) lists the skin as third in importance after the heart and gastro-intestinal tract in the expression of psychic phenomena.

The purpose of this communication is to call attention to a certain correlation which sometimes exists between psychic factors and photosensitivity, a correlation which I would call " psycho-photo-relationship ".

General Illustrations.

Pellagra.—In a paper entitled " Psychogenic Factors Showing Photosensitivity ; a Contribution to the Etiology of Sporadic Pellagra ", read in 1943 before a conference of the Israel Dermatological Society (Berlin, 1944) I presented a number of cases in which emotional disturbances, mostly acute, seemed to initiate the outbreak of pellagroid skin reactions, or even the full clinical picture of pellagra. The patients were generally elderly women but there were a few younger patients. Having lost their appetites, the patients' intake of food was considerably reduced, and a deficiency state finally developed.

Lichen ruber planus.—In the Middle East a particular type of lichen planus is encountered, characterized by a predilection for the exposed areas. It occurs in relatively young persons with dark complexions. Dostrovsky and Sagher (1949) described it in detail as " Lichen Planus in Subtropical Countries " ; an appropriate name might be " lichen planus photogenicus ". From my own experience in a fair number of such cases the onset of the disorder or of exacerbations coincided with emotional stress.

Lichen simplex chronicus.—In contrast to disseminated neurodermatitis (atopic dermatitis) in which the allergic factors are rather evident, the psychogenic factor predominates in the localized type (Stokes, 1935 ; Hubler, 1939 ;

Shaffer and Beerman, 1951). In Israel, lichen simplex chronicus is commonly located on the nape and sides of the neck and is often seen in young and middle-aged persons mainly of oriental origin. Rein and Snider (1952), suspecting that this type of lichen is more prevalent in Orientals, sent a questionnaire on the subject to a group of dermatologists. Most of them confirmed their suspicion and emphasized the importance of the psychogenic factor in producing this disorder. In 50% the neck was involved. Lynch (1949) studied 83 cases of localized neurodermatitis of the suboccipital region in middle-aged women and found that it was often associated with menstrual and emotional disturbances.

Vitiligo.—Vitiligo is listed by Becker (1932) among the dermatoses with neurocirculatory instability. Habermann (1933) and Obermayer (1955) stress the tendency to neurosis, and Lindberg (Habermann, 1933) quotes numerous reports indicating the emotional origin of this disease. No special sites of predilection are known in vitiligo. However, I have found that in Israel it is often localized exclusively or predominantly on the exposed parts (" vitiligo photogenica "). The lesions appear to be more prominent in summer because of the tanning of the adjacent areas. This form attacks mainly young and middle-aged females. Of course, the cosmetic effects themselves are a source of worry to the patients, but careful history-taking revealed that most of them suffered from fatigue, worry or mild depression even before the onset of the disease.

Granuloma annulare.—It is likely that granuloma annulare also belongs to this group. The disease may occur anywhere in the skin, but is more common on the backs of the fingers, hands, forearms and on the neck. Its cause is unknown and it is generally not considered to be a psychocutaneous disorder. Yet in a number of personally observed cases, events of a disturbing nature preceded the onset of the disease or its recurrence. The well known fact that the lesions frequently resolve " spontaneously " after a biopsy suggests a psychic component.

Verruca plana.—Flat warts, although due to a virus infection, seem often to be precipitated by emotional tension. Here too the removal of a few lesions is sometimes followed by disappearance of all the others. Bruno Bloch (1927) succeeded in curing 88·4% of his cases by suggestion, and three-fifths of them with one session alone. The lesions occur almost exclusively on the exposed areas.

Herpes simplex.—Herpes simplex is another viral infection which may be included in this group. It chiefly affects the face. Burckhardt (1947) calls it " herpes solaris ". A definite correlation can sometimes be demonstrated between recurrence of the herpes and emotional stress.

Psychogenic factors are occasionally associated with lupus erythematosus discoides and cheilitis actinica.

Many authors (Stokes and Beerman, 1932; Klaber and Wittkower, 1939; MacKenna, 1944; Hodgson, 1945) maintain that rosacea is essentially a psychocutaneous disease. It is not often seen in Israel. Apparently a cold and windy climate favours its development. In a few cases, chiefly in women, observed here, a definite state of anxiety and worry was evident.

Ida MacAlpine (1953) studied 35 patients with various chronic facial dermatoses (excluding acne) by psychoanalysis. The most frequent emotion "responsible" for the skin condition was suppressed anger, with a tendency to depression. Certainly, in many cases of psychocutaneous illness, the psychogenic basis is deeply rooted in the character of the patient. It may often be detected only after thorough examination by a competent psychiatrist. On the other hand, there are cases where an emotional origin seems very striking, e.g. when death of a near relative, financial difficulty, an unhappy love affair, or a severe fright is followed immediately by the outbreak of the disorder. The first clear observation made was in 1940. Shortly after a severe air raid in Tel-Aviv, four patients were seen with various skin eruptions which were confined exclusively to the uncovered parts of the body (Berlin, 1941). This distinct correlation between the psyche and sunlight was very impressive.

Further observation has led me to think that this interrelationship is not rare. The skin manifestations are not always easily diagnosed. They may look like solar or toxic erythema, drug eruptions, erythema multiforme, contact dermatitis or exudative neurodermatitis. Incidentally, the description and the illustrations of this last entity in Becker and Obermayer's text-book (1943) strongly suggest a photodynamic pattern. If the lesions persist for some time, they may spread beyond the original border or new lesions may appear elsewhere too. This, however, does not change the fact that the primary and outstanding sites of predilection are the exposed areas.

The following cases briefly illustrate psycho-photo-relationship.

Case Reports.

Case 1.—A 19-year-old Oriental Jewish girl visited the clinic because of an itching erythematous maculopapular eruption. It appeared ten days previously and was limited to the face, neck and extensor surfaces of the forearms and lower parts of the arms. The consulting physician in attendance suggested a diagnosis of urticaria. An elimination diet and antihistamines produced no improvement. After further questioning, the patient revealed that the eruption appeared a day after an emotional upset relating to her fiancé, who had jilted her.

Case 2.—A woman aged 40 developed an eruption ten hours after she learned of the death of her 12-year-old boy in an accident. The eruption was of the erythema multiforme type and was strictly confined to the face, backs of the hands, forearms, and the uncovered parts of the upper arms.

Case 3.—A 32-year-old Oriental Jew was seen because of an acute erysipelas-like dermatitis on the nose and cheeks associated with a burning sensation. The eruption appeared suddenly after a great emotional upset because of a disastrous business affair. The cause was clearly understood by the patient since a year previously a similar eruption developed shortly after his father's death.

Case 4.—A housewife aged 35, mother of 4 children, complained of an itching eruption of several weeks' duration. It was confined to the face, neck and upper extremities. There were plaques with excoriations and lichenification. She was very nervous and markedly fatigued. She worked as a domestic and did her own housework in the evenings. In addition, she had difficulties in her married life. The present eruption developed after a serious quarrel with her husband. It subsided within ten days under treatment with sedatives.

Discussion.

The patients were carefully questioned and examined. They had not been in contact with photosensitizing substances from plants or cosmetics, or eaten foods or drugs which are known photosensitizers. No other somatic manifestations were found. The sole and outstanding cause uncovered was the emotional upset which immediately preceded the outbreak of the dermatoses. However, we cannot altogether rule out other aetiological factors. Recently Guy (1952), experimenting on guinea-pigs caged in a tension box, showed that disturbed animals have an increased contact sensitivity to allergens. He considers rightly that a similar mechanism may act in human beings. Emotional stress may mobilize a quiescent seborrhoeic state or a latent allergic predisposition. Patients who previously had been able to tolerate exposure to various substances may become allergic to them. The psychic factor here undoubtedly plays an important role, and without this stress the dermatoses may not, in my opinion, break out.

The target organ selection in psychosomatic disorders is only poorly understood. It is equally difficult to explain the site of predilection in psychocutaneous diseases. The involvement of the anogenital region, for example, suggests emotional disturbances in the sexual sphere. As to the particular localization in our cases, the patients were not exposed to sunlight just before the onset of the disease, but in most of them the uncovered parts of the body were somewhat tanned or weather-beaten, and might provide a locus minoris resistentiae. Epstein (1946) calls this mechanism " phototraumatism " and it is observed in some dermatoses with photodynamic properties, such as pellagra and drug eruptions (Berlin, 1947).

There may be another explanation. The skin, as a protective and sense organ, serves as a medium of expression of certain emotional conflicts (Sack, 1927). The patient demonstrates his conflict by producing an eruption in prominently visible areas, thus reflecting unconsciously, and sometimes consciously, diverse feelings such as guilt and shame (rosacea), but predominantly in order to elicit sympathy.

There are several reasons why psycho-photo-dermatoses are relatively common in Israel: First, there is abundant sunlight in this region; second, Jews are rather emotional. In Cormia's (1951) comprehensive study of 104 cases of psychocutaneous diseases there were 35 Jewish patients. Additional local circumstances are connected with anxiety and insecurity which are very

important problems in this country. The personality type of our patients is rather characteristic. Most of them are hypersensitive and react strongly to emotional stimuli. They are mostly young or middle-aged, and women oftener than men, Oriental rather than European, and unlearned rather than educated. Unsophisticated people are more apt to be influenced by emotions. They also firmly believe in the power of fear to cause disease. There is no doubt that further psycho-photo-relationships may be encountered if looked for.

Summary.

Psycho-photo-relationship means the correlation which sometimes exists between emotionally influenced dermatoses and photosensitivity. This is observed in a number of different diseases, some of unknown and others of known origin. In addition, psychic factors of more acute type may play an important contributory and even a primary role in precipitating the development of non-specific eruptions in the exposed areas.

Four illustrative cases are briefly reported.

There are two possible explanations for psychophotodynamics: Either the skin, altered by sunlight, provides a locus minoris resistentiae (phototraumatism); or the involvement of the exposed visible areas may serve as an expression of various feelings such as guilt, shame and a desire for sympathy or favour.

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FAMILIAL SARCOIDOSIS.

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Although sarcoidosis is now a well recognized clinical entity its cause is obscure and for this reason the family incidence of the condition is of interest. There are reports in the literature of 26 cases of sarcoidosis in siblings (Table I). In 16 of these, it occurred in two brothers or sisters ; in 4, three or more brothers or sisters were affected ; in 4, the patients were identical twins ; and in 2, it was present in two generations.

Sarcoidosis occurring in mother and son, and in a second family in brother and sister is recorded in this paper.

Case Reports.

The first family.—This is a Yorkshire Dale family.

Case 1. *Family history.*—A woman, aged 66, was first seen in 1945. Her mother died aged 58 of cancer of the pancreas, and her father aged 65 of nephritis. She had two brothers, one who died aged 34 from an accident, and one who suffers from psoriasis and is otherwise well. She married a stonemason who died of cancer of the tongue. There were four children ; a daughter aged 34 has mental trouble, a son aged 39 (Case 2), a daughter aged 41 and a son aged 35.

History.—When aged 18 she noticed some discoloration and swelling of her right cheek which gradually disappeared in the course of seven years. A similar patch appeared on the left cheek when she was aged 60, and shortly after this the nose became involved with the same blue discoloration and swelling. About this time, swelling of the proximal phalanx of the left middle finger was noticed. Gradually other fingers became involved. When seen two years later there was no change.

Examination.—Typical lupus pernio infiltration and telangiectases were present over most of the cheeks, the right ear, left mandibular and chin strap area. The proximal and middle phalanges of most of the fingers, particularly the left middle, right middle, ring and index fingers, were swollen.

Investigations.—Skiagrams : The phalanges of both hands showed punched out areas and an abnormality of the bone pattern typical of sarcoidosis. Similar changes were present in the phalanges of both little toes.

Mantoux reaction—1 in 1000 positive.

Kveim test—positive.

Blood cytology, Wassermann reaction and blood urea within normal limits.

Case 2. *History.*—This man aged 39, the son of Case 1, was admitted to hospital in April 1944. For the past year he had had a persistent unproductive cough. Three weeks before admission he had developed a paralysis of the left facial muscles.

Examination (April 1944).—There was a lower motor neurone lesion of the left seventh cranial nerve. Lymph nodes were palpable in the neck, axillae and groin.

Investigations.—Skiagrams : The chest showed opacities at the apices. Hilar shadows were increased and the lung markings at both bases were more prominent than usual. The hands and feet were normal.

Sputum—no acid-fast bacilli.

Mantoux reaction—1 in 1000 negative.

Blood cytology, sedimentation rate and Wassermann reaction were normal.

Histology of a lymph node, taken from the axilla, showed an appearance characteristic of sarcoidosis.

Course.—The patient was discharged from hospital after five weeks and re-admitted in August 1945. He was then complaining of cough, breathlessness on exertion and loss of energy. He was slightly cyanosed and râles were present throughout both lungs. A skiagram of the chest showed an increase in the shadows at the left upper zone and new shadows in the right apical region. He was discharged after three weeks and was finally admitted in January 1947. At this time he had dyspnoea,

TABLE I.

Authors.	Relations and distribution of sarcoid.
Martenstein (1923)	Two sisters (lupus pernio in one).
Sellei and Berger (1926)	Three sisters and 2 brothers (cutaneous).
Dressler (1938)	Two brothers (pulmonary and lymph node).
Dressler (1939)	Brother and sister (pulmonary).
Bergmann (1939)	Brother (pulmonary and cutaneous tubercle bacilli found at autopsy) and sister pulmonary
MacCormac (1940)	Sister (cutaneous, lymph node, pulmonary, liver and spleen) and sister (cutaneous).
Richter and Richter (1941)	Sister (lymph node and bone). Sister (lymph node). One died of miliary tuberculosis and one of tuberculous meningitis.
Elshout (1942)	Mother and daughter (pulmonary and eye).
Boggild (1944)	Two sister (bone).
van Buchem (1946)	Two brothers.
Kalkoff and Mohr (1947)	Sister (cutaneous, pulmonary and bone). Sister (pulmonary and eye).
Kuklová-Stúrová (1947)	Sister (erythema nodosum followed by cutaneous). Sister (erythema nodosum followed by bone, developed tuberculous meningitis).
Robinson and Hahn (1947)	(i) Brother (cutaneous, lymph node and ? pulmonary). Brother (facial nerve, pulmonary, eye and lymph node). (ii) Brother (lymph node, pulmonary, spleen, parotid and facial nerve). Three brothers (lymph node, pulmonary and eye) Sister ? sarcoid. Brother ? sarcoid.
Leitner (1949)	(i) Brother and sister (lymph node and pulmonary). (ii) Two brothers and sister (lymph node).
Sherer and Kelly (1949)	Identical twins (pulmonary, cutaneous and lymph node).
Bickerstaff (1949)	Two brothers (pulmonary and spleen).
Klingmuller (1951)	(i) Mother (cutaneous, ? bone and pulmonary). Son. (ii) Sister (cutaneous and pulmonary). Sister (cutaneous, bone and pulmonary).
Gilg (1952)	Identical twins (cutaneous).
Rogers and Netherton (1954)	Identical twins. One, facial nerve, parotids, lymph node and cutaneous. The other, parotids, lymph node and pulmonary. Began in each case 13–14 months after their first pregnancy.
Zwanenberg and Barry (1955)	Brother (lymph node and hepatic). Brother (pulmonary and lymph node). Brother and sister (lymph node). In three the histology although resembling sarcoid showed caseation.
Swirsky and Lowman (1955)	Brother and sister (pulmonary and lymph node).
Moriarty (1956)	Sister (eye, parotid, pulmonary and lymph node). Sister (pulmonary and lymph node).
Allen (1957)	Identical twins (eye and lymph node).

cyanosis, oedema of the ankles and sacral region, bilateral pleural effusions, ascites and an easily palpable liver. The heart was clinically enlarged and a systolic murmur was present at the apex. An electrocardiogram showed right axis deviation with right ventricular hypertrophy.

He died four days after admission.

Autopsy Report.

Thorax.—Bilateral serous pleural effusion. Enlarged discrete hilar lymph nodes and a mass of similar glands in the anterior mediastinum. Lungs: calcified nodule at left apex; no consolidation. Heart slightly enlarged.

Abdomen.—Serous ascites. Liver: chronic venous congestion (wt. 2000 g.). Spleen: slightly enlarged, capsule thickened and adherent. Lymph nodes not grossly enlarged.

Central nervous system.—Normal.

Histology.—Changes of sarcoidosis are scattered throughout the lymph nodes, lungs and liver. Spleen: chronic venous congestion. Central nervous system and the left seventh nerve normal.

The second family.—This is an Irish family of five brothers and four sisters. The mother died aged 45 (cause unknown) and the father died aged 84 with hemiplegia. One brother died of heart disease. One brother (Case 3) and one sister (Case 4) have sarcoidosis.

Case 3.—A man aged 40 was first seen in 1953 when he had noticed patches in the skin, lassitude and dyspnoea for six months.

Examination.—Violaceous patches of infiltration typical of sarcoid were present on the backs and fronts of the thighs, the backs of both arms and on the buttocks.

Investigations.—Skiagrams of the chest showed well marked bilateral hilar lymph node enlargement. Lung fields clear.

Histology of skin—typical sarcoidosis.

Liver biopsy (1954) showed typical sarcoid.

Mantoux reaction—1 in 1000 negative, 1 in 100 positive.

Case 4.—The sister of Case 3, aged 41, a nursing sister, was first seen in 1954. Routine skiagrams of the chest in 1952 had shown enlarged hilar lymph nodes and a further skiagram in 1953 showed miliary mottling of the lungs. Her general health was good and there were no symptoms or abnormal signs.

Investigations.—Blood cytology, serum proteins and skiagrams of hands and feet were normal. E.S.R. (Westergren) 28.

Mantoux reaction—1 in 100 positive.

Course.—An eight-months course of treatment with streptomycin 1 g. every three days and PAS 15 g. daily had no effect. Cortisone 100 mg. daily was then added and the pulmonary mottling showed some progressive clearing. Treatment was continued for six months—cortisone 50 mg. daily, streptomycin 1 g. every three days and INH 200 mg. daily. She is at present well and working, but the chest skiagram shows some fine reticulation.

Discussion.

It seems likely that the four patients described in the paper all suffered from various manifestations of sarcoidosis. The significance of this familial tendency is difficult to assess. It is suggested that sarcoid represents a *peculiar individual* response to a stimulus which in some may be tuberculosis, in some, various other identifiable conditions, and in others unknown. The familial tendency fits in with this conception.

Summary.

There are 26 reports of familial sarcoidosis in the literature ; 16 occurring in a brother or sister ; 4 in more than two brothers and sisters ; 4 in identical twins and 2 in two generations.

Two further families are described. In one, the mother had sarcoidosis of the skin and bones and her son had sarcoidosis of lymph nodes, liver and lung from which he died. In the other, a man had sarcoidosis of the skin, lymph nodes, liver and lungs and his sister had sarcoidosis of lymph nodes and lung.

I should like to thank Dr. J. T. Ingram for his advice and for permission to publish Case 1; Dr. J. V. Wilson carried out the autopsy in Case 2 and his help in the paper has been much appreciated. I thank also Dr. J. E. G. Pearson for allowing me to publish data in connection with Case 3, and Dr. J. J. Flanagan for information about Case 4.

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INEFFICACY OF SODIUM BISMUTH TRIGLYCOLLAMATE IN THE TREATMENT OF WARTS.

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The epidemic of warts in this country is so troublesome that any easy form of treatment is worth investigating. One which simply involves taking medicaments by mouth would be especially welcome.

O'Connor and Tweedall (1948) treated 14 patients with warts by giving them 3–9 tablets of Bistrimate daily. Their results were encouraging, 8 being cured and 4 improved. Two patients had to stop treatment, one because of diarrhoea and one because of abdominal cramps.

Howles (1948) treated 18 patients with multiple common warts with 3–6 tablets daily. There was complete cure in 12 and improvement in the remaining 6. Four patients with plantar warts failed to respond to treatment.

Miller and Delaney (1949) gave 2–6 tablets daily to 6 patients with plane warts, 5 of whom were cured ; and to 11 patients with common warts, 4 being cured and 5 improved.

Bistrimate tablets each contain 410 mg. of sodium bismuth triglycollamate corresponding to 75 mg. of bismuth.

Investigation.

Large bottles containing white tablets were supplied and the tablets were dispensed from them. Half the bottles were labelled D and half U. Which of these contained the Bistrimate and which contained only lactose was not known to anyone except the manufacturers until the end of the investigation. Alternate patients were given tablets from the D and U bottles. The dose ranged from 2–6 tablets daily in divided doses depending on the age of the patient. The patients formed a consecutive series of those with common or plane warts but excluding those with plantar warts. Treatment was continued for 5–7 weeks. There were no complaints of ill effects from the tablets.

It was found impossible to follow up all the patients treated but 36 could be followed adequately. The results are shown in Table I.

Table I.

	Lactose.	Bistrimate.
Number treated	17	19
Cured	4 (23·5%)	2 (10·5%)
Improved	4 (23·5%)	6 (31·5%)
Not improved	9 (53%)	11 (58%)

Table II shows the results of treatment of patients under the age of 15.

Table II.

	Lactose.	Bistrimate.
Number treated	11	13
Cured	4 (36%)	1 (7·7%)
Improved	4 (36%)	4 (30·8%)
Not improved	3 (28%)	8 (61·5%)

Discussion.

Those taking Bistrimate apparently did rather worse than the controls, but statistical study shows there is no significant difference between the two groups. The effects of suggestion on warts are so well known that there need be no surprise at the number who improved.

Summary.

With the dosage employed, sodium bismuth triglycollamate taken by mouth is useless for the treatment of warts.

I wish to thank Mining and Chemical Products, Limited, for preparing and supplying all the tablets used in this investigation.

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ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

President—Dr. John T. Ingram.

17 October 1957.

Acne Agminata.—Dr. E. Wilson-Jones (for Dr. G. C. Wells).

History.—A man aged 23 noticed little papules on the lower eyelids 5 months ago. Further symptomless lesions appeared between the eyebrows and on the upper lip. About 3 months ago, larger nodules appeared on either side of the bridge of the nose. One of these has recently discharged some pus.

His general health has been good.

Fig. 1.

Examination.—Discrete brownish papules are seen on the lower lids, between the eyebrows and above the upper lip. On both sides of the nose, between it and the inner canthi, there are larger, deeper nodules which feel cystic (Fig. 1). General medical examination is negative.

Investigations.—Skiagram of chest showed no lung lesion. Mantoux test, 1 in 10,000 strongly positive.

Comment.—The small papules are typical of acne agminata and we wondered if the larger nodules were of the same kind.

Postscript.—In November 1957, a biopsy was made from the large nodule on the right side of the nose. In the deeper part of the cutis there was a tuberculoid granuloma showing central caseous degeneration.

Discussion.

The President : I had a man who developed acne agminata of the face within a few months of returning from service in the Middle East. The condition cleared in the usual 12 months. This year I saw the man's mother, with identical acne agminata, she having been on holiday in Australia and South Africa. It was interesting to have a mother and son with this trouble which they attributed to the hot climates.

Dr. G. A. G. Peterkin : I have seen a similar case recently in a man of 35 with cystic lesions. He did not attribute the trouble to heat, but he improved greatly after going to the South of France. He was cured completely with dermabrasion by a plastic surgeon. A cousin had a condition similar to chloracne following the use of Nivea cream, with a quite different histology.

The following cases have been reported in *Proc. R. Soc. Med.*, **51** : 173 :

Chronic Granuloma of Face.—Dr. F. F. Hellier.
Chloracne. Dr. C. M. Ridley.

The following cases also were shown :

Incontinentia Pigmenti.—Dr. R. G. Howell (for Dr. R. T. Brain).
[1] Oral Epithelial Naevus, [2] Hansen's Disease.—Dr. C. M. Ridley.
? Tertiary Lues.—Dr. P. A. J. Smith.
Kaposi's Idiopathic Haemorrhagic Sarcoma.—Dr. G. C. Wells.

21 November 1957.

Callosities ? Yaws.—Dr. J. S. Pegum.

A West Indian woman, aged 35.

History.—In 1954 she developed hard corns on the soles of both feet. They were the size of a sixpenny piece at first and then gradually spread and became very painful. She was given 12 injections of a white substance over a period of six weeks in Jamaica. This was for " genital trouble ". It did not affect the corns on the soles and in fact they became worse.

She complains also of a vaginal discharge which she has had for some time.

She started to wear shoes at the age of seven.

Examination.—There are large callosities on both feet and pigmented areas on the palms and soles. There is a pigmented scar on the front of one tibia. There is a faint bismuth blue line on the gums.

Investigations.—Blood W.R. positive ; P.P.R. positive (1 in 8) ; G.F.T. positive (neat) ; T.W.R. positive.

Skiagrams of tibiae and chest normal.

C.S.F. Lange 001101 ; protein 30 mg. per 100 ml. C.S.F. W.R. negative.

W.B.C. 8600, polymorphs. 67%, lymphocytes 29%, monocytes 1%, eosinophils 3%.

Biopsy of sole of foot shows great thickening of the horny layer, thickening of the granular and Malpighian layers. In the dermis there is vascular dilatation and the collagen bundles seem to be more separated than normally.

Treatment.—She has had five weekly injections of 0·3 g. of bismuth and has almost completed a course of 14 daily intramuscular injections of 600,000 units of procaine penicillin.

Comment.—I am not sure whether this patient is suffering from yaws or whether she happens to have rather unusual callosities on the feet associated with a positive serology. Furtado (1957) states that keratodermia palmaris et plantaris has great diagnostic value in yaws owing to its high frequency and that it is very often the only manifestation of the disease. This patient also fulfils some of the other diagnostic

criteria which he suggests. She has resided in a zone in which yaws is endemic, and there is no evidence of involvement of internal organs. She does not fulfil other criteria. She does not, for example, have a history of unquestionable yaws infection in the past, and she has no involvement of the bones.

Reference.

Furtado, T. A. (1957) *Arch. Derm., Chicago*, **76**, 446.

Plantar Hyperkeratosis ? Yaws.—Dr. R. D. Catterall (introduced by Dr. J. S. Pegum).

Jamaican negro woman aged 48.

History.—At the age of 12, developed sores on the soles of both feet and pains in the joints. Diagnosed as yaws, treated with one injection in hip. Four months later sores of feet returned and were treated with one further injection with satisfactory result.

Eight years ago she came to Britain. Since then she has had progressive soreness and thickening on both soles, worse during the past six months. Local applications are ineffective.

She did not wear shoes until aged six and frequently ran about without them until an adult.

Examination.—Several areas of thickened hyperkeratinized skin on the soles of both feet, tender on pressure, no fissuring or ulcers. A few well healed scars on both lower legs. General examination normal.

Investigations.—Blood W.R. and P.P.R. negative. Treponemal Immobilization Test positive.

Skiagrams of tibiae and chest normal.

Discussion.

Dr. R. R. Willcox : I found these two cases extremely interesting but do not feel I can usefully add anything to what has already been said as to whether the condition in these cases is or is not due to yaws. An interesting point is that in spite of the larger number of West Indians and West Africans in this country the problems of yaws on the strictly clinical side are not at all formidable. In this country we do not see lesions such as they see in the tropics ; seldom do we encounter gummata or bone changes, and relatively seldom do we see pigmentary changes or juxta-articular nodes although they occasionally are met in West Indians and West Africans coming here. On the other hand, yaws is a serological problem as positive serum tests probably due to the disease are encountered time and time again amongst Negro expectant mothers and in those attending venereal disease clinics. There are no known serum tests which distinguish yaws from syphilis.

It is evident therefore that there are considerable numbers of cases of latent yaws in this country but that they are not producing the expected number of clinical late manifestations. The question is why is this so? It has always been said of course that yaws does not flourish in temperate climates. It was Sydenham who stated that the Englishman brings back syphilis, never yaws, from his sojourn in the tropics. Yaws as seen in the tropics presents a different picture from what we see here but the possibility of climatic influence on lesions cannot be discounted. It has been noted, however, in areas where endemic syphilis or yaws exists that the incidence of late lesions tends to run parallel with the incidence of early lesions and it has been postulated that gummatous changes may result from superinfection of latent cases. In this country early syphilis is now an uncommon disease and the possibility of these latent yaws cases becoming super-infected with *T. pallidum* is relatively small. This might explain the paucity of clinical late yaws lesions.

In reference to these particular cases, I have no doubt that for reasons of safety and convenience they would tend to be classified as yaws in a mass campaign conducted against the disease. Viewed individually, many would regard them just as callosities. I think we can only wait to see what effect the treatment has.

Dr. H. D. Chambers (Jamaica) : I should like to suggest that these lesions are not due to yaws and that such callosities do not necessarily accompany a history of yaws. Similar callosities are to be found in persons with no history of yaws whether they live in yaws endemic areas or not.

Deodorant Granuloma of the Axillae.—Dr. I. Sarkany (for Dr. C. D. Calnan).

A woman aged 26. Secretary.

First attended in July 1957, complaining of a rash and irritation of both axillae of six months' duration, with gradual deterioration over the past four months. She was found to have a sharply circumscribed "lichenified eczema" of both axillae and was treated with cetrimide and hydrocortisone lotion. This was followed by marked exacerbation. Saline compresses and calamine lotion then produced some improvement and she was given two doses of superficial x-rays, totalling 200 r. The rash in the axillae became worse again.

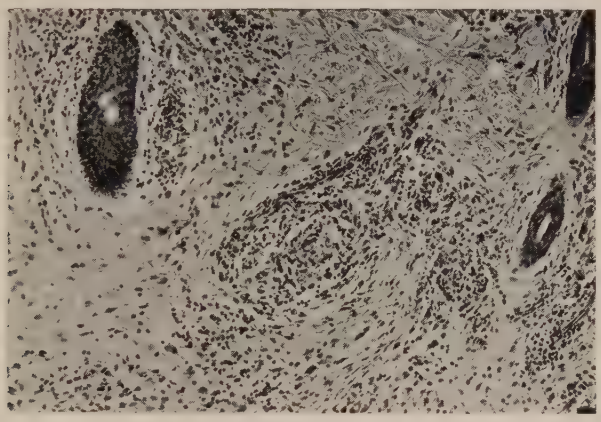

Fig. 1.

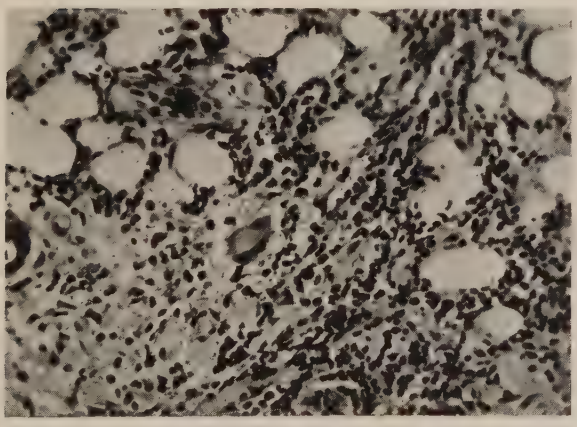

Fig. 2.

It transpired that the patient started using a deodorant stick after Christmas 1956, whereas previously she had used a spray deodorant. The rash first appeared in January 1957, i.e. about a month after she began to use the stick.

On examination in September 1957, there was an "eczematous" reaction of both axillae and in addition groups of small papules, one of which was biopsied.

She now has slight residual lichenification and a few of the original discrete papular lesions. There is still a moderate degree of irritation.

Investigations.—Patch tests with deodorant stick positive (irritant reaction), cetrimide 0·1% negative, 1% solution of sodium zirconium lactate negative.

Intracutaneous injection into left forearm of 0·1 ml. of 1% solution of sodium zirconium lactate produced a strong positive reaction. The reaction was of dermal type and consisted of a raised erythematous lesion approximately 3 cm. in diameter. This persisted for a few days only. At the end of a month, there was a small palpable nodule at the site of the injection, which was biopsied.

Histology (Dr. H. Haber): 1. Axillary papule. The cutis shows a marked perivascular infiltration consisting chiefly of round cells. Several foci show also endothelial cells with giant cells of the Langhans type. The tuberculoid character is obvious. This is a commencing axillary granuloma (Fig. 1).

2. Lesion from the left forearm. There is considerable inflammatory reaction around vessels, appendages, and within the fat tissue. There are a few fat lobules lying in the upper cutis and showing also an inflammatory reaction. The cells are lymphocytes but a few small giant cells could also be found. The histology is in keeping with zirconium granuloma (Fig. 2).

Discussion.

Dr. C. D. Calnan: On inquiry at one of the makers of stick deodorants, we found that although sodium zirconium lactate had been included in these sticks in America for two or three years, it was used in England only from the beginning of this year (January 1957). When I inquired in July, it had already been withdrawn.

Relapsing Panniculitis.—Dr. R. G. Howell (for Dr. R. T. Brain).

Boy aged 3 years 2 months.

History.—For 7 months there has been a depressed lesion 2 in. by 1½ in. on the front of the left lower leg. The tissues are firm and fixed deeply. There is slight erythema and infiltration around the depression. The overlying skin appears normal. A similar, but smaller, lesion appeared on the front of the right lower leg 2 months ago.

The development of these lesions does not appear to be associated with any disturbance of general health or with fever. General physical examination shows no other abnormality.

Investigations.—Hb 75%, W.B.C. 5000, polymorphs 68%, lymphocytes 32%, E.S.R. 6 mm./1 hour (Westergren). Plasma proteins 6·4 g./100 ml., electrophoretic curve normal. Blood W.R. and Kahn negative. Skiagrams of chest, long bones and skull show no abnormality.

Biopsy of lesion on the left leg: There is no abnormality of the epidermis. In the upper dermis there is a very mild lymphocytic infiltration, mostly around blood vessels and appendages. The connective tissue appears normal. The subcutaneous fat shows polymorphic and lymphocytic infiltration between fat cells, large foamy histiocytes and multinucleate giant cells and fibroblastic proliferation (Dr. B. Ockendon).

Comment.—The histological findings show the presence of a panniculitis, with changes as seen in relapsing nodular non-suppurative panniculitis (Weber-Christian disease). However, the clinical course is not consistent with the latter disease and it is probable that the histology of Weber-Christian disease is not specific. The classification of this case, therefore, remains in doubt.

Discussion.

Dr. H. Haber: The fat tissue shows an infiltration by polymorphonuclears, the presence of lipophages and fibrosis. These changes show different stages of a process seen in Christian-Weber's disease.

Dr. F. Ray Bettley : I suggest that this case falls into the group of panatrophy which seems to be non-inflammatory—that is to say, clinically non-inflammatory—in that it produces no tender masses like the Parkes-Weber type of panniculitis. There are no general symptoms but a completely silent development of a depression in the skin which goes on until there is a complete absence of subcutaneous tissue, with muscular atrophy beneath. This commonly occurs in children and I think perhaps the Parkes-Weber panniculitis does not. I brought a boy to this Section in November 1949 (*Brit. J. Derm.*, 1950, **62**, 330) with multiple lesions of, I think, the same kind as in to-day's case. The worst one was on one buttock where a substantial part of the muscle bulk was also lost with weakness of the affected limb. Another case I showed here was of a pubertal girl whose lesions were mainly about the scapular region.

An important feature of this case is the absence of inflammatory lesions. Another point, a small one but perhaps of some value, is the very slight degree of pigmentation which occurs over the affected area. Gowers, when he first described this condition, referred to it as discoloration of the skin. This boy to-day showed this, I thought, on the lesion on the left leg, possibly not on the right leg. We might not notice this very slight degree of pigmentation but I think it might be a useful point.

Dr. Brian Russell : A patient of mine with nodulation beneath the skin of the temples and of the arms, followed by fat atrophy, was shown before this Section in March 1956 by Dr. Peter Smith under the title Nodular Panniculitis with Atrophy. She has since developed a lesion on the cheek suggestive of chronic discoid lupus erythematosus. Andrews in a discussion of a paper by Arnold on Lupus Erythematosus Profundus (Arnold, H. L., 1956, *Arch. Derm. Syph., Chicago*, **73**, 15) mentions a condition of lupus erythematosus and panniculitis in which the nodules may appear before the typical lesions of discoid lupus erythematosus.

The following cases were published in *Proc. R. Soc. Med.*, **51**, 175 :

Mucous Membrane Pemphigoid.—Dr. J. H. Allison (for Dr. F. Ray Bettley)
Pemphigus Vegetans.—Dr. F. Ray Bettley.

The following cases also were shown :

Eruptive Collagenosis.—Dr. C. D. Calnan and Dr. H. Haber.
Contact Dermatitis from Neomycin.—Dr. C. D. Calnan and Dr. I. Sarkany.
Ulerythema ophryogenes.—Dr. J. H. Allison (for Dr. F. Ray Bettley).
Ulerythema ophryogenes. Dr. R. H. Meara.
Atrophie Blanche.—Dr. P. Hall-Smith.

BOOK REVIEWS.

The External Ear.*

The ear canal in its outermost third is a microcosm of the skin's glandular activity. Shaped like a test tube it can be visually studied in its entirety and its secretions are easily available for analysis.

This book deals at some length with the anatomy, comparative anatomy, histology and bacteriology of the ear canal, in health and disease. In particular, it deals with the diagnosis and treatment of otitis externa in its various guises and with its experimental production. The conclusions are that while a single factor such as a primary irritant or an allergic contactant can produce an otitis, usually it is the combination of several factors (high humidity, high temperatures, trauma, infection with micro-organisms or abnormalities in the lipids of the skin surface) that is operative in producing pathological change.

There is no mention of the influence of low hygienic standards, habitual fingering of the meatus and its traumatic contamination with organisms which as often as not come from the intestinal tract. The frequent association of pruritus ani with otitis externa is also not mentioned.

There is an extensive bibliography.

The histological illustrations are excellent throughout ; the clinical illustrations are fair. B. F. R.

Diseases of the External Ear.†

As might be expected this book is mainly devoted to otitis externa although space is used to give a classification of diseases—many of which are obvious and some of which will never be seen by most otologists or dermatologists. There are adequate sections on anatomy and histology, microbiology and pathology and, in addition, there is a useful chapter on the prophylaxis of otitis externa and the results of field tests. There is an extensive bibliography and a good index. D. R.

An International Nomenclature of Yaws Lesions.‡

The lack of a generally recognized nomenclature of yaws during the past half-century has produced much confusion, which has of late become more apparent as widespread yaws-control activities have gathered momentum on an international scale. The readiness of countries to pool public health experience and material resources, together with the evolution of techniques for mass treatment campaigns was greatly stimulated by the appearance of a new and effective remedy for yaws in long-acting penicillin. It was quickly realized, however, that these practical develop-

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**The Human Ear Canal.* Eldon T. Perry (1957). Springfield, Illinois : Charles C. Thomas. Oxford : Blackwood Scientific Publications. Pp. 116. Figs. 40. Price 36*s*. 0*d*.

†*Diseases of the External Ear.* Ben H. Senturia (1958). Oxford : Blackwell Scientific Publications. Springfield, Illinois : Charles C. Thomas. Pp. 211. Price 63*s*. 0*d*.

‡*An International Nomenclature of Yaws Lesions.* C. J. Hackett (1957). Geneva : W.H.O. Monograph Series. No. 36. Pp. 104. Figs. 34. Price £1.

ments had outstripped what may be regarded as a fundamental tool in the knowledge of any disease, an agreed terminology.

This monograph has two purposes : To introduce a universal nomenclature based on standard dermatological terms, and to lay down criteria for defining the stages of yaws, formerly a source of hopeless confusion. Both objects have been achieved with a happy combination of clarity and conciseness and make this work indispensable to those who wish to communicate their experience in the study and management of yaws. Dermatologists of renown have collaborated in instituting a few universally acceptable terms, such as (e.g.) " squamous macular early yaws " and " squamous micropapular early yaws " for 12 previously used and insufficiently defined names. The stages of the disease have been logically reduced to " early " and " late ", and their definition is adequately given in a single page of lucid writing.

The text now published has been drawn from the opinions of many past and present authorities on yaws from many countries. The illustrations of the lesions have been carefully selected from African material ; they should contribute to a clearer recognition of the manifestations of the disease.

This reviewer welcomes the new terminology and gladly joins in giving the raspberry (or framboesia) to such old acquaintances as " mother yaw ", " ghoul hand " and " yaws trash ". L. J. A. L.

CORRESPONDENCE

The Editor, ' The British Journal of Dermatology '.

SIR,—May I say how much I enjoyed reading the admirable researches of Doctors Shelley and Hurley (March 1958) on Zirconium Granuloma. They prove most conclusively that zirconium introduced into the skin of a sensitized subject will produce an epithelioid granuloma.

In reporting this as the first demonstration of artificially produced epithelioid granuloma in man, they have overlooked my report of the production of a sarcoid-like granuloma after a positive patch test with beryllium sulphate in a case of beryllium disease (*Brit. med. J.*, 1955, i, 1448). It is quite understandable that this has been overlooked as it was not published in a dermatological journal. That it was not an isolated freak occurrence has been shown by a repetition of this experiment in a second case of beryllium disease in which an epithelioid granuloma occurred in the site of a positive patch test to 1% beryllium nitrate. A report of the second case has recently been published (*Postgrad. med. J.* 1958, **34**, 262).

I agree entirely with Doctors Shelley and Hurley that we must redouble our efforts to identify other substances which are capable of initiating this type of reaction. I have unsuccessfully attempted to elicit the response with silicates in silica granulomata but only by patch testing and not by intradermal injection.

I am, Sir,
Yours faithfully,
I. B. SNEDDON.

Sheffield,
April 1958.

CURRENT LITERATURE.

INCIDENCE OF DISSEMINATED LUPUS ERYTHEMATOSUS. A. Svanborg and L. Solvell. (1957) *J. Amer. med. Ass.*, **165**, 1126.

The apparent increased incidence of disseminated lupus erythematosus has been attributed to improved methods of diagnosis. The authors examined hospital case records for three 2-year periods—1938–39, 1948–49, 1954–55. All patients whose symptomatology suggested the possibility of lupus erythematosus were traced and followed to re-examination or to autopsy. There were three cases in each of the earlier periods and 18 in the third. There appears to have been a real and significant increase in the incidence of the disease in Sweden. A. J. R.

TREATMENT OF PEMPHIGUS WITH CORTICOSTEROIDS. M. J. Costello, L. Jaimovich and M. Dannenberg. (1957) *J. Amer. med. Ass.*, **165**, 1249.

The mortality rate of pemphigus in 270 patients treated at Bellevue Hospital, New York, before the intoduction of corticosteroids was over 90%. It was reduced to 33% in the 52 patients reported who were treated with steroids. The steroids proved of greater value in pemphigus vegetans than in pemphigus erythematosus or foliaceus. A few patients have been free from symptoms for one, two or more years without continued treatment but the majority have required maintenance dosage. Pemphigus foliaceus may be improved by antimalarial drugs.

A. J. R.

PRINCIPLES OF MANAGEMENT OF ALLERGIC DISORDERS WITH PREDNISONE AND PREDNISOLONE. S. C. Bukantz and L. Aubuchon. (1957) *J. Amer. med. Ass.*, **165**, 1256.

After a detailed account of the management of allergic disorders with prednisone or prednisolone, in which indications, dosage and complications are fully described, the authors conclude that these drugs can be safely employed even in long-term treatment provided the patients remain under close clinical and laboratory supervision. A. J. R.

STUDIES ON SIGNIFICANCE OF BIOLOGIC FALSE-POSITIVE REACTION. J. L. Miller, M. Brodey and J. H. Hill. (1957) *J. Amer. med. Ass.*, **164**, 1461.

Of 245 patients with persistent biologic false positives 23·2% had systemic disease. Females accounted for 71% of the total series and 84% of those with systemic disease. The onset of the false-positive reaction occurred most frequently between the ages of 20 and 30. Two per cent. of the total series have developed systemic lupus erythematosus. Of patients without clinical illness one-third had abnormal globulins. A biologic false-positive reaction is an indication for careful clinical and laboratory investigation. A. J. R.

CONTACT DERMATITIS DUE TO HYDROCORTISONE OINTMENT. W. M. Sams, J. G. Smith. (1957) *J. Amer. med. Ass.*, **164**, 1212.

A patient developed an allergic contact-type sensitivity to a hydrophilic ointment base. The presence of 1% hydrocortisone did not prevent the dermatitis, which was shown to be due to an allergy to free and sulphated higher alcohols. A. J. R.

MEDICAL SURVEY OF MARSHALLESE TWO YEARS AFTER EXPOSURE TO FALL-OUT RADIATION. R. A. Conard, C. E. Huggins, B. Cannon, A. Lowrey and J. B. Richards. (1957) *J. Amer. med. Ass.*, **164**, 1192.

The authors report a medical survey of the Rongelap people two years after exposure to fall-out radiation. In general there was evidence of satisfactory recovery. There was continued improvement in haemopoiesis and in the residual changes in the skin. The latter, produced by the beta irradiation, included irregular depigmentation and scarring. There was no gross evidence of tissue breakdown.

A. J. R.

THE OCULOGLANDULAR FORM OF CAT-SCRATCH DISEASE. J. M. Levitt. (1957) *J. Amer. med. Ass.*, **165**, 1955.

The report of the oculoglandular (Parinaud's) syndrome in a woman aged 34, which was proved to be a manifestation of cat-scratch disease. This syndrome can be produced by many infections—leptotrichosis, tuberculosis, tularaemia, syphilis, lymphogranuloma, sarcoidosis and others. Skin-testing with cat-scratch antigen establishes the diagnosis. A. J. R.

STATUS OF CORTICOTROPIN AND THE STEROID HORMONES IN THERAPY OF ALLERGIC DISEASE. R. Bookman. (1957) *J. Amer. med, Ass.*, **165**, 1950.

The use of corticotropin and the steroids for treating allergic disease should at present be restricted to those patients who fail to respond satisfactorily to other measures; the author found them necessary in only 45 of 699 patients. The mode of action of the steroids in allergic disorders is uncertain. They do not reduce antibody or reagin titres and do not influence anaphylactic shock. The risks of steroid administration are discussed. A. J. R.

MEDICAL MANAGEMENT OF THROMBOPHLEBITIS AND POSTPHLEBITIC SYNDROME. D. W. Kramer and A. de Medeiros. (1957) *J. Amer. med. Ass.*, **165**, 767.

The management of thrombophlebitis and the postphlebitic syndrome is described in detail on the basis of 300 cases of the former and 100 of the latter. Admission to hospital is advised for all cases of thrombophlebitis, however mild. In addition to anticoagulant therapy and other measures now conventional vasodilators are recommended. Paravertebral block with procaine hydrochloride 1% is helpful where there is much pain and oedema. Careful follow-up is essential. Ligation of the saphenous and femoral veins is not usually indicated in treatment of the postphlebitic syndrome. A. J. R.

REACTIONS FROM MULTIPLE INJECTIONS OF BENZATHINE PENICILLIN G. R. W. Sherwood, C. Gronbeck and F. W. Denny. (1957) *J. Amer. med. Ass.*, **165**, 667.

Repeated injections of benzathine penicillin G were given in the prophylaxis of streptococcal infections. There were no fatal or anaphylactoid reactions. The cumulative probability of reacting was about 6% with each of two dosage schedules. Most of the severer reactions occurred after the first injection. The probability of reaction to subsequent doses decreased. A. J. R.

DERMATOLOGICAL RADIATION THERAPY IN THIS NUCLEAR AGE—AN APPRAISAL. P. M. Crossland. (1957) *J. Amer. med. Ass.*, **165**, 647.

Advances in pharmacology have reduced the indications for radiotherapy. Although careless or casual use of ionizing radiations must be condemned the hazards are not sufficient to warrant withholding it in certain benign conditions for which it is certainly beneficial. A. J. R.

SERUM GLUTAMIC OXALACETIC TRANSAMINASE IN DERMATOMYOSITIS. J. M. de Moragas, H. O. Perry and G. A. Fleisher. (1957) *J. Amer. med. Ass.*, **165**, 1936.

Dermatomyositis occurring in 17 patients was classified clinically as active or inactive. Three inactive cases had normal serum transaminase levels while 14 active cases had high levels, as much as 10 times the normal level of 1·01 micromoles/ml. In 4 cases the level fell during clinical improvement. High serum transaminase levels may be found in acute lupus erythematosus, after myocardial infarction and in other conditions in which there is destruction of tissue. A normal serum transaminase level makes the diagnosis of active dermatomyositis unlikely. A. J. R.

IN VIVO SCREENING OF ANTIFUNGAL OINTMENTS. S. Molinas. (1955) *J. invest. Derm.*, **25**, 33.

For each pair of preparations to be tested 4 guinea-pigs each with 4 shaved areas were inoculated, with or without excoriation, with *T. mentagrophytes*. The drugs, incorporated in polyethylene glycol ointment U.S.P. were compared not only with each other but with a standard, the compound undecylenic acid ointment of the NF and with its plain base.

Not even 2-dimethylamino-6-betadiethylamino ethoxybenzathiazole dihydrochloride was found to be superior to the standard and some of them had no more effect than the unmedicated base. J. H. T. D.

EXPERIMENTAL MICROSPORON LANOSUM INFECTION IN DOGS, CATS AND RABBITS. I. OBSERVATION ON THE COURSE OF THE PRIMARY INFECTION AND ATTEMPTS TO DEVELOP A METHOD FOR SCREENING ANTIFUNGAL AGENTS IN LABORATORY ANIMALS. F. Reiss, L. Caroline and L. Leonard. (1955) *J. invest. Derm.*, **24**, 575

EXPERIMENTAL MICROSPORON LANOSUM INFECTION IN DOGS, CATS AND RABBITS. II. STUDIES ON THE COURSE OF REINFECTION. F. Reiss and L. Leonard. (1955) *J. invest. Derm.*, **24**, 589.

What is the duration of ringworm in various domestic animals ; and which animal has the least individual variation ? 10–40 weeks ; baby rabbits.

Can they be reinfected after recovery from a first attack ; and how long does the fresh attack last ? Lesions were produced in every case and evidence of their infectivity was found in 5 out of 6 9½-month-old rabbits up to anything between 5–10 weeks ; 2 out of 4 7-month rabbits, 3–11 weeks ; 2 out of 7 dogs, 5 weeks ; all of 5 cats 4–14 weeks. J. H. T. D.

A NEW ANTIFUNGAL ANTIBIOTIC, MYCOSTATIN (NYASTATIN) FOR THE TREATMENT OF MONILIASIS : A PRELIMINARY REPORT. M. B. Sloane. (1955) *J. invest. Derm.* **24**, 569.

Eight cases of moniliasis in a year and 4 of them within a month : 4 cured after a few days, 1 after 12 months, 3 improved (in chronological order (I.C.I.C.C.C.I.C.)). J. H. T. D.

STUDIES ON TYROSINASE REACTION. I. A NEW METHOD OF ACTIVATING THE TYROSINASE REACTION. Y. Yoshida and Y. Togaski. (1955) *J. invest. Derm.*, **24**, 573.

Both 1% $CuSO_4$ and oestrogen injected intradermally before biopsy are as effective as U.V.L. for enabling melanocytes to form pigment from tyrosin *in vitro*. J. H. T. D.

THE TREATMENT OF MILIARIA RUBRA WITH NEOMYCIN LOTION. R. E. Lyons and J. A. Hunt. (1955) *J. invest. Derm.*, **24**, 557.

Prickly heat is a nuisance in the neighbourhood of San Antonio, Texas. The authors who have hitherto accepted Shelley's view (that " patients and physicians alike turn to topical medicaments offering little more than a token of psychotherapy " and in some cases causative of still " more plugging and obstruction of the sweat pores ") undertook to compare a lotion containing neomycin with the excipient alone. The experiment had seemed to them worth while in view of O'Brien's conclusion that the staphylococcus plays an essential part in the condition. On the results obtained they now recommend this lotion, preferably fortified with the antibiotic. The majority of patients treated with either preparation reported almost immediate subjective improvement after the first application. Symmetrical paired comparisons were not employed. In the figures are included cases treated initially with the dummy and subsequently with the active preparation. (One would have hoped to see more striking differences especially if the presence of stapylococci is regarded as critical.) J. H. T. D.

STIMULATION OF THE SWEAT GLANDS IN THE HAIRY SKIN OF THE DOG BY ADRENALINE, NORADRENALINE, ACETYLCHOLINE, MECHOLYL AND PILOCARPINE. T. Aoki. (1955) *J. invest. Derm.*, **24**, 545.

In popular belief the dog is supposed only to sweat on the pads of his feet, and to cool himself by evaporating the moisture in his lungs : the only recognized exceptions being the hairless edible hound of Nicaragua and, oddly enough, the hirsute Sky (*sic*) terrier.

By these experiments on mongrels of both sexes and at all seasons it is clear that the hairy skin is furnished with apocrine glands which have a regular (95%) response, limited by well marked refractory states, to radiant heat and the first four drugs in the title, but which respond inconstantly to pilocarpine and only exceptionally to nicotine, pain or violent exercise. J. H. T. D.

CYTOCHEMICAL STUDIES OF ECCRINE SWEAT TUBULES : CELLULAR DIFFERENTIATION AND GLYCOGEN CONTENT. E. E. Cormia and V. Kuykendall. (1955) *J. invest. Derm.*, **24**, 527.

It is here proposed that the 3 cell-types described by Montagna Chase and Lobitz represent various stages of repletion with glycogen and of exhaustion after secretion.

But if one proposes to describe cells that are stated to be numerous by just calling them " atypical," one should clearly define what it is that they are atypical of. Again one should not

state that the presence of something or other can be verified by a preliminary treatment which causes it to disappear altogether. Otherwise the descriptions seem to be fairly clear; though to follow the argument closely it might be necessary to attempt the reproduction of some of the work. J. H. T. D.

IDIOPATHIC HYPERLIPAEMIA AND PRIMARY HYPERCHOLESTERINAEMIC XANTHOMATOSIS. VI: STUDIES OF THE SERUM PROTEINS AND LIPOPROTEINS BY MOVING BOUNDARY ELECTROPHORESIS AND PAPER ELECTROPHORESIS BEFORE AND AFTER ADMINISTRATION OF HEPARIN. F. S. M. Herbst, W. F. Lever and N. A. Hurley. (1955) *J. invest. Derm.*, **24**, 507.

This will interest mainly the biochemist.

An intravenous injection of 100 mg. heparin does not alter the electrophoretic appearances in a normal fasting serum.

In alimentary, nephrotic and idiopathic hyperlipaemia heparin accelerates the lipoprotein and makes a small fraction of it run ahead even of the albumen. Similar changes are observed in normal sera that have been stored.

In primary hypercholesterinaemic sera only the β lipoproteins are accelerated.

The particles (chylomicra) responsible for the turbidity in alimentary hyperlipaemia all move at the same velocity, namely that of the α_2 globulin, but in the idiopathic condition they have various mobilities. The clearing effect of heparin is attributed to its favouring the binding of lipoids to protein. Treatment with it seemed of clinical benefit to patients with idiopathic lipaemia; but the only case of hypercholesterinaemic xanthoma was unchanged.

J. H. T. D.

URINARY EXCRETION OF 17-KETOSTEROIDS AND 17-HYDROXYCORTICOSTEROIDS AFTER INUNCTION OF HYDROCORTISONE OINTMENT. C. C. Smith. (1955) *J. invest. Derm.*, **25**, 67.

If any hydrocortisone were absorbed one would expect to find a reduction in the former and an increase in the latter class of hormones. But this failed to happen when 10 g. of 2½% hydrocortisone ointment was rubbed for 10 minutes into the normal skin of the back and of the proximal parts of the extremities. J. H. T. D.

VISCERAL LESIONS IN PEMPHIGUS. J. Charpy, G. Tramier and A. Stahl. (1955) *Arch. belg. Derm. Syph.*, **11**, 22.

From extensive visceral lesions found at autopsy of three cases of pemphigus vulgaris the authors confirm the view that pemphigus is something more than merely a cutaneous disease. J. K.

CUTANEOUS PORPHYRIA IN THE ADULT. M. Bolgert and J. Canivet. (1955) *Arch. belg. Derm. Syph.*, **11**, 26.

Of 19 patients with cutaneous porphyria 16 were men and 3 women, their ages ranging from 39 to 66 years at the onset of the disease. The essential lesions were bullae appearing in bursts of 6–12 on sound skin on the exposed parts of the body. These bullae are subepidermal and differ from those of dermatitis herpetiformis in the irregularity of the base which projects in digitiform or filiform manner, and the entire absence of cells in the contents of the bullae. These projections from the base of the bullae contain dilated capillaries, but there is no inflammatory reaction in the dermis. Along with the bullae are found atrophic macules, apparently secondary to former bullae; pinhead-sized cysts which ultimately disappear; greyish or brown pigmentation especially of the temporo-malar regions and sometimes sclerodermatous areas. During the active periods of the disease the urine is reddish, fluoresces red under Wood's light and contains uroporphyrins I and II.

The prognosis as regards life is good as no visceral symptoms were observed in this series, but treatment must be only symptomatic in the absence of knowledge of the cause of porphyria.

J. K.

TOTAL SULPHYDRYL CONTENT IN NORMAL AND VITILIGINOUS HUMAN SKIN. S. Lajmanovich and P. H. Magnin. (1956) *J. invest. Derm.*, **25**, 79.

"Total" by contrast with the merely water-extractible SH groups with which previous studies have been concerned. The tissues here are disintegrated with trichloracetic acid and "Duponol", so as to release the lot. J. H. T. D.

ASSAY TECHNICS FOR LOCAL ANTI-INFLAMMATORY ACTIVITY IN THE SKIN OF MAN WITH PREDNISONE AND PREDNISOLONE. L. Goldman, R. Flatt and J. Baskett. (1955) *J. invest. Derm.*, **25**, 75.

These steroids differ only very slightly in their chemical structure from cortisone and hydrocortisone and produce similar local effects. By the mouth, it is stated, they are 4 or 5 times as effective ; and, at the lower dosage thus made possible, side effects are infrequent. J. H. T. D.

THE COMPONENTS OF THE CORNIFIED EPITHELIUM OF THE HUMAN SKIN. A. G. Matolsy and C. A. Balsamo. (1955) *J. invest. Derm.*, **25**, 71.

Horny material obtained from callosities was reduced to a dry powder. A porcelain-ball mill is mentioned as the means by which the cornified epithelium was " broken down into its single cellular constituents ", but no method of desiccation is specified.

Twenty-one per cent. of the powder dissolves in $\frac{1}{15}$ M phosphate buffer of pH 7·1. Of this 60% is non-dialysable and is referred to as " soluble epidermal keratin " (SEK). All that remains, except a 5% residue of what is believed to consist of extra tough cell membranes, dissolves in 0·02 N NaOH. Only 20% of this is dialysable and the high molecular weight substance which is here named " epidermal keratin derivative " (EKD) seems, apart from differences in solubility to be much the same as the SEK. The acid precipitated EKD varies slightly in composition according to the original solvent employed. J. H. T. D.

THE CUTANEOUS INNERVATION OF HUMAN NEWBORN PREPUCE. R. K. Winkelmann. (1957) *J. invest. Derm.*, **26**, 53.

An exhaustive anatomical study, including historical survey and 34 references to the secular literature, of a point in the borderland between surgery and theology.

The view that nerve filaments do not enter the epidermis is upheld. J. H. T. D.

DIRECT IDENTIFICATION OF CANDIDA ALBICANS ON LITTMAN'S OX-GALL AGAR. E. M. Shapiro, J. F. Mullins and M. E. Pinkerton. (1957) *J. invest. Derm.*, **26**, 77.

The colonies of *Candida albicans* tend to be distinguishable when grown on this medium by their shape and colour from those of other species. But absolute identification still depends on chlamydospore formation and pathogenicity by intravenous injection into white rabbits. (A useful and readable account of methods at present employed.) J. H. T. D.

INHIBITION OF GRENZ RAY ERYTHEMA BY ONE SINGLE TOPICAL HORMONE APPLICATION. F. Kalz and A. Scott. (1956) *J. invest. Derm.*, **26**, 165.

Ointments containing 1% hydrocortisone 0·2% fluorhydrocortisone or 5% ACTH applied for several hours and removed immediately before irradiation partly inhibit the reaction to Grenz rays within a certain range of dosage. J. H. T. D.

RADIOAUTOGRAPHIC STUDY OF EXPERIMENTAL SPOROTRICHOSIS AFTER THE ADMINISTRATION OF RADIOACTIVE IODINE. J. Shintani, W. Flexsheim and J. W. Wilson. (1956) *J. invest. Derm.*, **26**, 137.

Supplies no evidence that iodine is concentrated in the lesion. (A closely reasoned and attractive account of problem, experiment and conclusions.) J. H. T. D.

EFFECT OF THE ANTIDIURETIC HORMONE (" PITRESSIN ") ON THE INSENSIBLE WATER LOSS OF THE SKIN. A. M. Morn and N. A. Clene. (1956) *J. invest. Derm.*, **26**, 427.

As expected from its known effect in *amphibiae* (*sic*) pitressin reduces it, both in healthy skin and in the 2–5-fold more permeable skin of erythroderma. J. H. T. D.

THE EFFECT OF CARCINOGENIC AGENTS ON THE PHOSPHORUS CONTENT OF HAIR BULBS AND EPIDERMIS. THE EFFECT OF X-RAYS ON THE PHOSPHORUS CONTENT OF THE HAIR BULBS. Z. M. Holló and S. Zlatarov. (1956) *J. invest. Derm.*, **26**, 379.

THE ACTION OF X-RAY IRRADIATION AND PAINTING WITH CARCINOGENIC HYDROCARBONS ON THE PHOSPHORUS CONTENT OF THE EPIDERMIS. Z. M. Holló and S. Zlatorov. (1956) *J. invest. Derm.*, **26**, 383.

The roots of human hair caused to fall by x-ray (and also by ingestion of thallium) were found to contain no phosphorus at all in contrast with the 12–17 γ per 100 γ of nitrogen in the case of plucked hair.

In rats 3000 r by contact x-ray, and in mice a single painting with methylcholanthrene and benzpyrene, reduced the phosphorus in hairless epidermis by about 30%. J. H. T. D.

STUDIES OF RADIOACTIVE PHOSPHORUS (P^{32}) APPLIED TO HUMAN SKIN. I. ERYTHEMA AND AUTORADIOGRAPHIC FINDINGS FOLLOWING APPLICATION IN VARIOUS FORMS. V. H. Witten, E. W. Brauer, R. Loevinger and V. Holmstrom. (1956) *J. invest. Derm.*, **26**, 437.

Measured in terms of erythema the effect of P^{32} applied as a watery solution of sodium phosphate does not depend anything like as much as that of thorium X on penetration. This is because the average range of the electrons is 3–4 mm. and the main effect must come from the bulk of the material which of course remains on the surface. J. H. T. D.

BONE LESIONS IN URTICARIA PIGMENTOSA. REPORT OF A CENTRAL REGISTRY ON SKELETAL X-RAY SURVEY. F. Sagher and S. Schon. (1956) *J. invest. Derm.*, **26**, 431

Bone lesions were seen in 19 out of 52 cases. There are 2 types : (1) localized " Calcified deposits and decalcified areas of various sizes in humerus radius . . . " and (2) generalized cystic osteoporosis of the ribs with " thickening of the bony trabeculae ; stippling of the bony structure in the skull . . . a bony pattern consistent predominantly with osteosclerosis ".

In the one case available for autopsy mast cell aggregates were detected in the affected bones. J. H. T. D.

SULPHONE DRUGS IN DUHRING'S DISEASE. FURTHER EXPERIENCE. T. Cornbleet. (1956) *J. invest. Derm.*, **26**, 489.

A survey of 27 cases treated during 7 years, most of them with diasone. This drug, like sulphapyridine which it has by no means superseded, merely suppresses the symptoms ; but its effectiveness is not reduced by accustomance. Can then its action possibly be antimicrobial ? J. H. T. D.

HAZARD OF CORTICOTROPIN AND CORTISONE THERAPY IN PATIENTS WITH HYPERCHOLESTEREMIA. D. Aldersberg, J. Stricker and H. Himes. (1955) *J. Amer. med. Ass.*, **159**, 1731.

Experience with four patients who developed thromboembolic complications while receiving ACTH or cortisone suggests the need for caution in administering these drugs to patients with hypercholesteraemia. Hypercoagulability induced by the steroids may be disastrous in individuals with the vascular disease, sometimes not clinically evident, associated with hypercholesteraemia. A. J. R.

EFFECT OF TOPICALLY APPLIED ANTIOBIOTIC AGENTS ON AXILLARY ODOR. W. B. Shelley and M. M. Cahn. (1955) *J. Amer. med. Ass.*, **159**, 1736.

The application of neomycin in a cream or lotion completely inhibited the production of axillary odour in 20 men. Axillary odour results from the action of bacteria on apocrine sweat. Antibiotics may be useful in patients who do not tolerate the usual aluminium salts. A. J. R.

PORPHYRIA AND PREGNANCY. J. B. Durst and M. A. Krembs. (1956) *J. Amer. med. Ass.*, **160**, 165.

The effect of pregnancy in three cases of porphyria is reported. After an exacerbation of symptoms during the first three months there was an improvement during the remainder of the pregnancies. In two of the patients the symptoms recurred after delivery. In one patient tetraethylammonium chloride relieved the abdominal cramp. A. J. R.